

**INTERFEROMETER SYSTEM**  
**FOR MEASURING A HEIGHT OF WAFER STAGE**

**ABSTRACT OF THE DISCLOSURE**

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An interferometer system for measuring the height of a wafer stage utilizes four beams emitted horizontally parallel to one another and in a same direction from an interferometer and obtained by splitting a single laser beam. Two of these four beams are reference beams and the other two are measurement beams. The reference beams are  
10 mutually on opposite sides of the center point of the stage, equally separated therefrom horizontally, and are reflected back from the front surface of the stage. The wafer stage is provided with two mirrors inclined at 45° extending horizontally so as to reflect the measurement beams vertically upward. These two inclined mirrors are disposed in lower front and upper back parts of the stage and the two measurement beams are aimed and  
15 reflected at target points on them, diametrically opposite with reference to the center point of the stage. The height of the wafer stage is calculated from measured path lengths of these four beams, independent of small displacements to first degree in other linear and rotational degrees of freedom of motion of the wafer stage.

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